

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

GTE MOBILNET OF CALIFORNIA
LIMITED PARTNERSHIP,

Plaintiff,

v.

CITY OF BERKELEY,

Defendant.

Case No. [20-cv-05460-DMR](#)

**FINDINGS OF FACT AND
CONCLUSIONS OF LAW**

I. INTRODUCTION

This is an action under the Telecommunications Act of 1996 (“TCA”), 47 U.S.C. § 332(c)(7). Plaintiff GTE Mobilnet of California (“Verizon”) alleges Defendant City of Berkeley (“Berkeley” or “the City”) unlawfully denied Verizon’s application to construct a personal wireless service facility in Berkeley, California. The court determined on cross motions for summary judgment by Verizon and Intervenor-Defendants Berryman Reservoir Neighbors (“BRN”) that Verizon was entitled to summary judgment on the second prong of its claim that Berkeley’s denial of the application had the effect of prohibiting Verizon from providing personal wireless services in violation of 47 U.S.C. § 332(c)(7)(B)(i)(II) (the “effective prohibition” claim). It also determined that Berkeley failed to act on Verizon’s application “within a reasonable period of time” after it was filed in violation of 47 U.S.C. § 332(c)(7)(B)(ii) (the “failure-to-act claim”). *GTE Mobilnet of Cal. Ltd. P’ship v. City of Berkeley*, No. 20-CV-05460-DMR, 2023 WL 2648197, at *18, 28 (N.D. Cal. Mar. 27, 2023).¹

¹ The court granted BRN’s motion for summary judgment on Verizon’s claim that the denial of the application was not based on substantial evidence in violation of 47 U.S.C. § 332(c)(7)(B)(iii). *GTE Mobilnet*, 2023 WL 2648197, at *23.

The remaining issues are (1) the first prong of Verizon’s effective prohibition claim, which requires it to show that a “significant gap” in service coverage existed at the time of its application to build a personal wireless service facility, and (2) the appropriate remedy for the failure-to-act claim. *See id.* at *29. The court held a bench trial on the significant gap issue at which Verizon’s expert, Richard Conroy, and BRN’s expert, Robert Beegle, testified. Pursuant to Federal Rule of Civil Procedure 52(a), the court makes the following findings of fact and conclusions of law.

II. FINDINGS OF FACT

A. Verizon’s Application & ZAB’s Denial

On December 17, 2018, Verizon submitted an application for land use permits (“the Application”) to Berkeley’s Planning and Development Department, Land Use Planning Division to build a wireless telecommunications facility at the East Bay Municipal Utility District (“EBMUD”) Berryman Reservoir in Berkeley, California. [Docket No. 126 (Jt. Pretrial Statement) 4-5 (Joint Statement of Undisputed Facts, “JSUF”), A.] The Application proposed installation of a 50-foot monopole disguised as an evergreen tree along with six antennas, six remote radio units, and related cables and equipment mounted on the monopole, with supporting equipment installed on the ground. Administrative Record, “A.R.” 1-55.

In a section of the Application entitled, “Description of the Coverage area,” Verizon wrote that “Verizon’s objective is to improve coverage in the Berkeley Hills area, especially along Euclid Avenue north of EBMUD’s Berryman Reservoir. This area is primarily residential and wooded, and provides few traditional locations for cell sites.” A.R. 5. This was the sole description of the “coverage area” in the Application.

In a section of the Application entitled, “Description of Services,” Verizon wrote, “Verizon is proposing to provide LTE [long term evolution] service from this facility.” A.R. 6. The proposed wireless facility would provide 4G LTE service, which commingles voice and data services. *See* Trial Transcript Vol. I (“TTI”) 75-77. 4G LTE travels over four frequencies: 700 MHz, 850 MHz, 1900 MHz, and 2100 MHz. The 700 MHz and 850 MHz frequencies are the two “low band” frequencies, while 1900 MHz and 2100 MHz are the “high band” frequencies. TTI 138-39. Low band frequencies travel the greatest distance but have lower bandwidth, while high

band frequencies support greater usage but travel shorter distances than the low band frequencies. TTI 87.

In a section of the Application entitled, “Statements Related to Need,” Verizon wrote that “Verizon’s coverage objectives for this project are to improve service in the area described above, and to offload traffic from other nearby sites that are often at or exceeding capacity,” but the Application did not specify any neighboring sites that were at or exceeding capacity, nor did it provide data supporting this claim. A.R. 5. “Coverage” refers to Verizon’s “ability to provide a reliable signal to an area,” while “capacity” refers to users’ ability to access the network. TTI 85.²

Berkeley’s Zoning Adjustments Board (“ZAB”) scheduled a public hearing on the Application for June 27, 2019. A.R. 122. Prior to the hearing, Berkeley’s technical planning staff submitted a report to the ZAB analyzing the Application and recommending that it be approved. A.R. 129-37; JSUF B. The ZAB reviewed the Application at a public hearing on June 27, 2019 and voted to deny the Application. JSUF C.

B. Verizon’s Appeal & the Kharaba Report

Verizon appealed the ZAB’s denial to the Berkeley City Council on July 16, 2019. JSUF D. On March 5, 2020, Verizon submitted a report by Amr Kharaba, a Verizon radiofrequency design engineer, to the City in support of its appeal (the “Kharaba Report”). JSUF E; A.R. 2976, 1582-91 (Kharaba Report). Kharaba wrote that Verizon “has identified a significant gap in its [4G LTE] service in the north Berkeley hills residential neighborhoods” based on “inadequate 4G LTE service coverage” from five nearby facilities as well as “capacity exhaustion of the Verizon Wireless facility that provides the most service to the gap area.” A.R. 1582. According to Kharaba, the “coverage gap” and “capacity gap” “have resulted in the Significant Gap in Verizon

² Verizon submitted two coverage maps with the Application labeled “Before Site RSRP@700” and “After Site RSRP@700.” A.R. 17, 18. As discussed below, “RSRP” stands for “Reference Signal Received Power.” RSRP is a parameter that “depicts the signal strength” and is “used to define coverage in LTE networks.” TTI 106-07. The two coverage maps purport to show by color “In-Building Coverage,” “In-Vehicle Coverage,” and “On-Street Coverage” for the 700 MHz band. The maps do not contain a scale, identify a metric, or provide a description of the methodology used to create them. A.R. 17, 18. Verizon does not rely on the coverage maps to support the existence of a significant gap. [See generally Docket No. 170 (Verizon’s Post-Trial Proposed Findings of Fact and Conclusions of Law).]

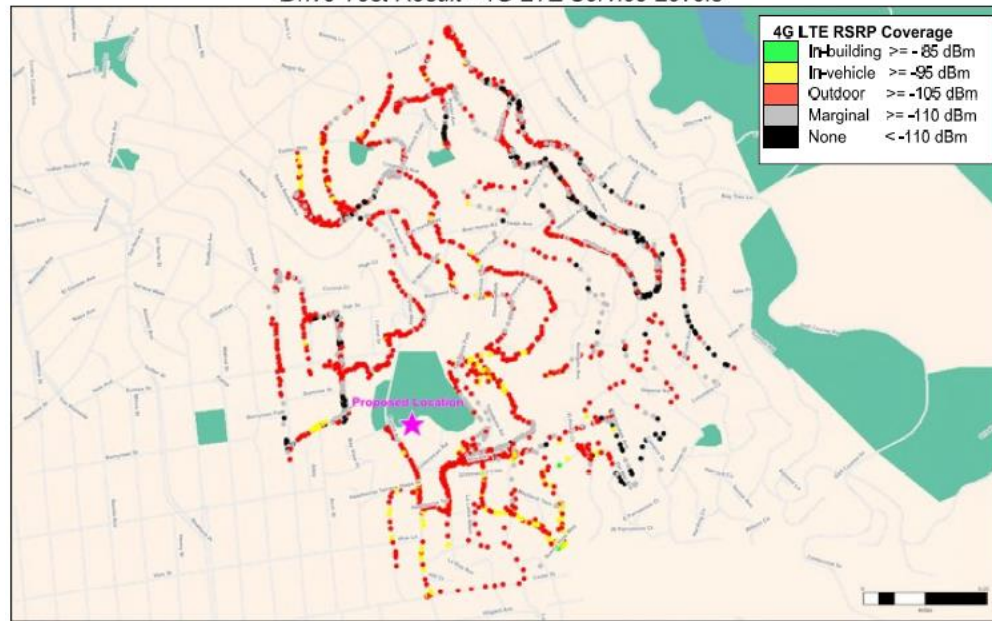
1 Wireless 4G LTE coverage and network capacity in the north Berkeley hills.” A.R. 1590.

2 With respect to the purported “coverage gap,” Kharaba wrote, “[t]his area currently
3 receives inadequate 4G LTE service coverage from the existing Verizon Wireless Kensington
4 Circle facility 1.1 miles northwest of the proposed facility, the Shattuck North facility 0.5 miles
5 southwest, the Lower University facility 1.6 miles southwest, the Berkeley Bekins facility 1.8
6 miles southwest, and the Gilman Street facility 1.9 miles west.” A.R. 1582. He continued, “[a]s a
7 result of the distance from existing facilities, there is a gap in 4G LTE in-building and in-vehicle
8 service coverage in the north Berkeley hills, and areas lacking outdoor coverage.” *Id.*

9 The Kharaba Report cited results of a December 2019 drive test and coverage maps as
10 evidence of the alleged coverage gap. A.R. 1583. With respect to the drive test, Kharaba stated
11 the test was performed by Gerald Kinney, Principal System Performance Engineer, from 12:07
12 p.m.-3:18 p.m. on December 17, 2019 using two devices, a Samsung Galaxy S7 and a Samsung
13 Galaxy S8. Kharaba asserted that Kinney used “DMAT,” a Verizon Device Monitoring and
14 Analysis Tool, to perform the analysis and that Kinney scanned the 700 MHz, 850 MHz, 1900
15 MHz, and 2100 MHz bands. A.R. 1583.

16 The Kharaba Report presented the drive test results in a map displaying one metric, RSRP.
17 A.R. 1583-84. As noted, RSRP is a measure of signal strength; it does not vary based on usage.
18 TTI 107, 191, 195. The measurement of RSRP uses negative values, where a higher negative
19 number corresponds to a stronger power level, e.g., -85 dBm is stronger than -95 dBm. TTI 107.
20 Additionally, the dBm scale is logarithmic, whereby -95 dBm is 10 times weaker than -85 dBm.
21 TTI 138. The drive test map, entitled “Drive Test Result—4G LTE Service Levels,” plots
22 colored dots corresponding to RSRP levels onto a map of the area (the “Kharaba drive test map”).
23 A.R. 1584.

Drive Test Result - 4G LTE Service Levels



Kharaba drive test map.

Verizon's December 2019 drive test used -85 dBm as the standard required for in-building coverage, -95 dBm as the standard for in-vehicle coverage, and -105 dBm for outdoor coverage. TTI 107-08; A.R. 1584.³ Kharaba concluded, "[t]his [drive test] map shows a lack of in-building coverage in the north Berkeley hills and barely any in-vehicle coverage" and stated, "only outdoor coverage is available, with pockets receiving marginal or no coverage." A.R. 1584. Kharaba wrote, "the Proposed Facility will provide new reliable 4G LTE service coverage to the gap area, including areas near Euclid Avenue between Keith Avenue and Vine Lane," and "will provide improved service coverage to an area of 1.6 square miles and a population of 2,420 residents." A.R. 1585. Kharaba did not otherwise specify the boundaries of the 1.6 square miles that comprise the alleged gap area, explain the basis for the number of residents in the alleged gap area, or state how many of the 2,420 residents are wireless users.

³ The Kharaba Report also stated that Verizon "uses PCS and AWS to provide over 70 percent of its 4G LTE service capacity throughout Berkeley," where PCS refers to the 1900 MHz band and AWS refers to the 2100 MHz band. A.R. 1584. The Kharaba Report included two coverage maps purporting to depict current and proposed 4G LTE AWS RSRP coverage of the area. A.R. 1586. Other than Conroy's testimony that Verizon used a "common radio propagation tool" called ATOLL to create the maps, TTI 111-12, Verizon did not otherwise offer evidence about how the maps were created, who created them, or the data supporting them.

1 As to the “capacity gap,” the Kharaba Report included a map labeled “Drive Test Result—
2 Best Serving Facility” that purports to show that 12 facilities provide signal to customer handsets
3 in the alleged gap area, and that the Lower University and Kensington Circle facilities provide
4 55.4% and 22.2% of service in the area, respectively. A.R. 1587. According to Kharaba, “the
5 Lower University facility that serves more than half of the gap area has reached capacity
6 exhaustion.” A.R. 1588. In support of this claim, Kharaba discussed one Key Performance
7 Indicator (“KPI”) that measures network performance, Average Scheduler Eligibility Usage
8 (“ASEU”). A.R. 1588-89. ASEU is “a capacity congestion key performance indicator.” TTI 78.
9 The Kharaba Report included “ASEU Capacity Charts” for the Lower University facility that
10 purportedly depict “how increased demand has already outstripped the capacity of the Lower
11 University facility’s antenna sectors that serve the gap area” and “the increased usage of [the
12 Lower University] facility through January 2020 [and] predicted usage through late 2020.” A.R.
13 1588-89. The ASEU Capacity Charts plot “Actual Usage,” “Normalized Usage,” “Usage Trend,”
14 and “Capacity Exhaustion” using color coding for two east-facing antenna sectors in the Lower
15 University facility. A.R. 1589 (ASEU Capacity Charts). The chart for the Alpha Antenna Sector
16 plots usage for six dates, including two future projections. The chart for the Delta Antenna Sector
17 plots usage for four dates, two of which were future projections. A.R. 1589.

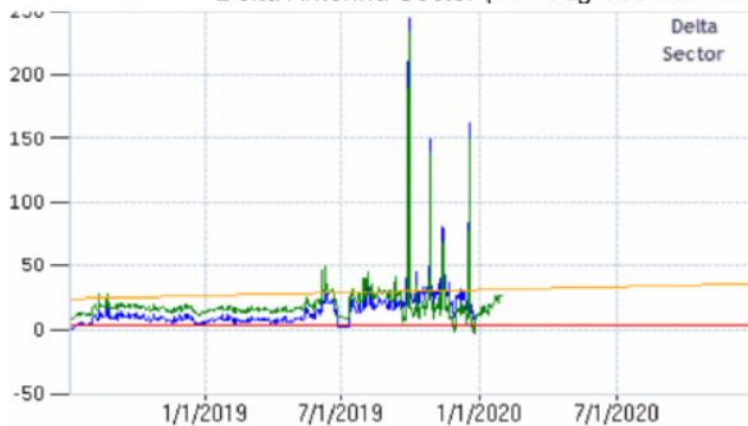
*ASEU Capacity Charts
Lower University Facility
East-Facing Antenna Sectors*

— Actual Usage
— Normalized Usage
— Usage Trend
— Capacity Exhaustion

Alpha Antenna Sector (80 degrees from north)



Delta Antenna Sector (101 degrees from north)



ASEU Capacity Charts. Neither chart cites a source for the usage data, includes any information about how the past usage data was obtained, or states the time of day usage was measured.

Kharaba concluded that the “Lower University facility antenna sectors reached capacity exhaustion over one year ago. Capacity exhaustion severely compromises the Verizon Wireless network in the entire area served by the exhausted antenna sectors, leading to call failures and slow data speeds, as well as poor call quality and reliability over Verizon Wireless VoLTE

1 technology (the ‘Capacity Gap’).” A.R. 1589.⁴ The Kharaba Report did not include any data
2 about call failures, slow data speeds, call quality, or reliability.

3 On May 7, 2020, Telecom Law Firm, P.C. (“TLF”), an independent consultant retained by
4 Berkeley to analyze the Application, submitted a report examining Verizon’s claims regarding
5 service within the claimed gap area. A.R. 1718-48; JSUF F. TLF stated that it reviewed the drive
6 test data and coverage maps in the Kharaba Report, A.R. 1743-48, and noted that with respect to
7 the RSRP coverage standards, including the use of -85 dBm as the standard required for in-
8 building coverage, “the levels and descriptions shown [in the drive test results] are solely selected
9 by Verizon. They are not set or otherwise regulated by the FCC or any State of California agency,
10 and each wireless company is free to select its own levels and descriptions.” A.R. 1744. TLF
11 concluded that “there are areas within the claimed gap that have adequate Verizon signal strength
12 to provide personal wireless services, but other areas that do not,” and that failure to add another
13 cell site to serve the “claimed gap area” could lead to “lower data throughput speeds and
14 potentially some undisclosed degradation(s) on the ability of Verizon customers . . . to make and
15 receive calls in the claimed gap area.” A.R. 1748.

16 On July 7, 2020, the City Council heard Verizon’s appeal and voted to adopt a resolution
17 affirming the ZAB’s denial of the Application (the “Denial Resolution”). A.R. 2665-67; JSUF H.
18 Berkeley mailed written notice of its denial of the Application and the Denial Resolution to
19 Verizon on September 8, 2020. A.R. 2746-48, 2707-10; JSUF I.

20 **C. Verizon’s Lawsuit**

21 Verizon timely filed the original complaint against Berkeley on August 6, 2020. In
22 October 2020, the court granted BRN’s motion for leave to intervene. Verizon filed the first
23

24 ⁴ At the June 27, 2019 hearing, Kharaba informed the ZAB that the gap area was currently served
25 by the Shattuck North and Downtown Berkeley facilities and stated, “these sites are already
26 exceeding their capacity limitations.” A.R. 2859-60. There is no record evidence about the
27 capacity of the Shattuck North or Downtown Berkeley facilities. The March 2020 Kharaba Report
28 identified the Lower University and Kensington Circle facilities as the two “best serving
facilit[ies]” and asserted that the Lower University facility “reached capacity exhaustion over one
year” prior to the report. A.R. 1587, 1589. Verizon’s expert Conroy was unable to explain this
discrepancy at trial, *see* Trial Transcript Vol. II (“TTII”) 275-77, although he testified on redirect
examination that the 2019 drive test “provided much more empirical data that demonstrated from
the drive test specifically where the best servers were coming from.” *Id.* at 308.

amended and supplemental complaint (“FASC”), which is the operative complaint, on February 1, 2021. The FAC states three claims for relief: 1) failure to act on the Application “within a reasonable period of time” after it was filed, in violation of 47 U.S.C. § 32(c)(7)(B)(ii) (the “failure-to-act claim”); 2) denial not based on substantial evidence in violation of 47 U.S.C. § 332(c)(7)(B)(iii) (the “substantial evidence claim”); and 3) unlawful prohibition of service in violation of 47 U.S.C. § 332(c)(7)(B)(i)(II) (the “effective prohibition claim”).

On cross motions for summary judgment by Verizon and BRN, the court found in Verizon’s favor on the failure-to-act claim; in Berkeley’s favor on the substantial evidence claim; and in Verizon’s favor on the second prong of the effective prohibition claim.⁵ The court denied summary judgment on the first prong of the effective prohibition claim. Two issues remain: 1) the first prong of the effective prohibition claim, i.e., the showing of a “significant gap” in service coverage as of 2020, when Berkeley denied the Application; and 2) the appropriate remedy for the failure-to-act claim. *GTE Mobilnet*, 2023 WL 2648197, at *18, 23, 28, 29.

D. The Parties’ Evidence Regarding Coverage

At trial, Verizon did not provide testimony from Kharaba or Kinney, the individual who performed the 2019 drive test. Instead, Verizon offered the testimony of Richard Conroy, an expert in the field of radiofrequency engineering and network design. Conroy testified that he reviewed the administrative record, including the Application and the Kharaba Report; obtained the “raw data” from the 2019 drive test; and obtained “additional key performance indicator data from Verizon.” He also visited the “subject area” and performed his own drive test in September 2023. TTI 84.

With respect to the 2019 data, Conroy testified that he had access to the RSRP drive test data; “different maps by frequency band and also by site, by server, by frequency band by server, by site”; and one KPI, the ASEU data. TTII 300. Conroy testified about his understanding of how the 2019 drive test was performed. According to Conroy, the tester used two phones “inside the

⁵ The second prong of the effective prohibition claim requires the provider to show “the lack of available and technologically feasible alternatives.” *GTE Mobilnet*, 2023 WL 2648197, at *25 (citing *T-Mobile USA, Inc. v. City of Anacortes*, 572 F.3d 987, 995-96 (9th Cir. 2009)).

1 vehicles, and then the vehicles were driven around the drive route” and the phones collected
 2 signals. The drive test “collect[ed] information on the cell sites . . . providing coverage,” the
 3 “frequencies . . . providing the coverage, the signal strengths, power levels, and the latitude and
 4 longitude of each of the data points.” TTI 110. According to Conroy, the drive test “mirrors
 5 what’s going on in the network” and reproduces the customer experience while inside a vehicle.
 6 TTI 110.

7 Conroy testified that he received the raw data from the 2019 drive test in excel files. TTI
 8 110. Specifically, he testified that he received an excel table that included “latitude, longitude, the
 9 signal strengths, the cell I.D.S., where the site signals were coming from.” TTI 185. Conroy then
 10 prepared a map using the 2019 drive test raw data on which he plotted signal levels using colored
 11 dots that correspond to RSRP levels. TTI 104-06, Trial Ex. 13C. Conroy testified that he used the
 12 2019 drive test raw data and “create[d] a virtually identical map” to the Kharaba drive test map,
 13 “but clearer,” TTI 105, and that the 2019 drive test data he received from Verizon “match[ed]” the
 14 drive test data shown in the Kharaba Report. TTI 186, TTII 306.

15 Several points undermine Conroy’s validation of the 2019 drive test data. First, Conroy
 16 knew little about the phones used for the 2019 drive test, including how old they were at the time
 17 of the test. TTI 192. He testified that “these were perfectly fine test phones when they were
 18 utilized” but there is no evidence that he inspected or reviewed the test phones. TTI 187. Conroy
 19 also admitted that he did not speak with Kinney, the person who performed the 2019 drive test.
 20 TTI 177. When asked how he knew the test phones were “perfectly fine . . . when they were
 21 utilized,” Conroy answered, “[f]rom the Verizon report and information they use and the data they
 22 provided to me” without offering any specifics, TTI 187, and there is no evidence that Verizon
 23 turned over the phones or data regarding the operation of the phones to the defense. Thus, there is
 24 no evidence in the record about the age or condition of the phones used in the 2019 drive test.

25 Next, even though the Kharaba Report stated that Kinney used two phones to collect the
 26 2019 drive test data, A.R. 1583, Conroy testified that Verizon provided him with data from only
 27 one phone. TTI 185, 189. When asked about the data from the second phone, Conroy initially
 28 testified, “I don’t know. I don’t know if that was—if there was data from another phone or this is

all the data cumulative,” TTI 185-86, but stated that “it seemed to match the data that was in the report. It seemed to be all I needed.” TTI 188. On the second day of his testimony, Conroy offered a slightly different explanation, speculating that the data “could have been combined data between the two phones.” TTII 229. Conroy subsequently admitted that he had met with Verizon’s counsel the morning before he resumed his testimony on the second day of trial and that he and counsel had discussed that “maybe the data was the combined combination of the two phones.” He could not recall other specifics of their conversation. TTII 230-31. The court finds that Conroy’s testimony that the 2019 drive test data could have been combined data from both phones is not credible and affords it no weight.

Finally, the Kharaba Report claimed that there was a coverage gap in the north Berkeley hills based on only one metric, RSRP. *See* A.R. 1583-84. Robert Beegle, BRN’s expert in the fields of forensic cell phone analysis, cell tower coverage analysis, radio frequency propagation mapping, and drive testing, TTII 356, 365-66, testified that using RSRP alone to determine coverage is not “a reliable method in and of itself to be able to determine coverage issues or lack of coverage issues.” According to Beegle, RSRP should instead be “coupled with drive tests” and be considered with “noise factors, interference factors,” and speed testing “to be more demonstrative of the actual user experience in the field,” per FCC guidance. TTII 380. For his part, although Conroy testified that “the significant gap is identified through the RSRP,” TTI 179, he also testified that RSRP is “one of the parameters” that “is used to define coverage in LTE networks,” suggesting that other parameters also play a role in determining network coverage. TTI 106-07. Thus, Verizon did not establish that considering RSRP alone is sufficient to assess network coverage.

In addition to the problems with the 2019 drive test results described above, Conroy’s own testing and analysis of Verizon’s network conditions in 2023 provide little, if any, support for the conclusions in the Kharaba Report.⁶ With respect to the Kharaba Report’s analysis of the purported capacity gap, it examined only one KPI—ASEU—and the ASEU Capacity Charts in the

⁶ As discussed below, the court only considered 2023 testing to the extent it is probative of conditions existing in 2020 at the time of the denial of the Application.

1 Kharaba Report do not cite sources for their usage data or include information about how or when
 2 the data was obtained. Although 2023 ASEU data was available to him, Conroy chose not to
 3 analyze it or compare it to Kharaba's January 2020 ASEU data. TTII 324-25. Instead, Conroy
 4 obtained four other categories of KPIs for a roughly three-month period between July and October
 5 2023: dropped call rate, access failure rate, downlink utilization rate, and downlink throughput
 6 utilization rate. TTII 302-03; Trial Exs. 13K. Conroy was not able to analyze or compare similar
 7 KPI data for 2019 or 2020 because Verizon did not retain it. TTII 247-50. He testified that 2023
 8 dropped call and access failure rates exceeded carriers' standards and showed poor network
 9 performance, TTI 150-57, but made no attempt to offer explanation or analysis as to how the
 10 network's performance in 2023 is probative of its performance in early 2020.

11 Conroy also testified that he performed his own drive test in 2023 to collect data and
 12 "validate" the results of the 2019 drive test "under [his] own controlled set of circumstances," TTI
 13 84, 115-16, and that his 2023 drive test confirmed the reliability of the 2019 drive test. TTI 189-
 14 90. However, the tests used different methods of data collection. Specifically, Conroy used a
 15 scanner with two antennae mounted on top of a vehicle to perform his test, whereas the 2019 drive
 16 test used two cell phones inside a vehicle. TTI 190, TTII 211, 217, 262.⁷ Conroy also testified
 17 that the signal measured outside a vehicle is stronger than one measured from inside a vehicle.
 18 TTI 217. Conroy did not provide testimony explaining how to compare data collected at different
 19 times by different equipment. As with the 2023 KPIs, Conroy was unable to provide any
 20 substantive analysis regarding how the 2023 drive test is probative of whether there was a gap in
 21 Verizon's coverage at the time the Application was denied in 2020. *See* TTI 125-32.⁸

22
 23 ⁷ Conroy testified that he "should have photographs" documenting the two antennas mounted on
 24 the rooftop of the vehicle because he "always photograph[s] the test set-up" before a drive test.
 25 TTII 263. BRN's counsel represented that no such photos were provided to the defense. TTII
 26 263.

27 ⁸ Conroy's reports did not offer opinions about *how* the 2023 drive test results corroborate the
 28 2019 drive test results, *see* TTI 116-17, 125-31, even though the court instructed the parties that it
 "will consider evidence that post-dates the denial of [the Application] only to the extent that it is
 probative of that issue, i.e., whether there was a significant gap in service coverage at the time of
 the denial of [the Application]." [See Docket No. 121.] Conroy's opening report stated only that
 "[t]he purpose of [the 2023 analysis] is to determine if the significant gap remains the same. Per
 my correspondence with Verizon, I have been informed that no additional sites have been added in

1 Accordingly, Verizon's evidence about network conditions in the gap area in 2023, including
2 Conroy's drive test results and analysis of the KPIs, is of minimal evidentiary value in
3 determining whether a significant gap existed in 2020.

4 Verizon also failed to justify its use of -85 dBm signal strength as the necessary standard
5 for in-building coverage, -95 dBm for in-vehicle coverage, and -105 dBm for outdoor coverage in
6 the 2019 drive test. The signal strength standard is selected by the carrier; it is not mandated by
7 the FCC or by law. TTII 220, 331. Conroy testified that wireless carriers use a "link budget" to
8 determine the standard and explained that a link budget is "the mathematical calculation of how
9 much power you have between the transmitting tower and the receiver." TTII 219. The Kharaba
10 Report described the parameters of the link budget as follows:

11 Verizon Wireless uses a 4G LTE RF link budget to calculate the
12 maximum allowable path loss (MAPL). The link budget takes into
13 account free space loss, fading and interference margins, and
14 equipment receiver sensitivity to calculate the maximum allowable
15 MAPL. A combination of the transmit power out of the antennas and
16 the MAPL determine the receive signal threshold required for outdoor
17 coverage. Adding vehicle body losses to the calculation determines
18 the receive signal threshold value for in-vehicle coverage. Similarly,
19 adding the building penetration losses to the calculation determines
20 the receive signal threshold required for in-building coverage.

21 A.R. 1585. However, the Kharaba Report did not include any actual figures used by Verizon to
22 perform the foregoing link budget calculation.

23 Beegle testified that the -85 dBm in-building standard "was a new standard that [he] hadn't
24 seen before," and that typically -95 dBm is used as the standard for in-building coverage. TTII
25 378. Conroy similarly testified that "the typical design level that you'll see for residential and
26 building in like a suburban environment usually is around a minus 95 dBm" and that Verizon has
27 used the -95 dBm standard in other cases, but he also testified that in areas with "high levels of
28

the area surrounding the Berkeley Hills area since the 2020 decision." [Docket No. 115
(Verizon's Expert Witness Designation and Disclosure) at ¶ 35.] Accordingly, the court sustained
BRN's objections to testimony about the significance of the 2023 analysis beyond what was
disclosed in Conroy's report. TTI 131 ("I'm not going to allow [Verizon] to go into any
explanations that are not in this report . . . he cannot testify beyond what is in his report, which is
fairly minimal, about why 2023 is corroborative or can be correlated with the conditions in 2020."
TTI 131-32.

1 interference, you may need to have stronger signal.” TTII 220, 332-33, 335.

2 Conroy testified that Verizon informed him that the -85 dBm standard was necessary due
3 to “additional interference” in the area and that it did not give him the link budget information it
4 used to determine the -85 dBm in-building standard for the 2019 drive test. TTII 227-28, 323.
5 Conroy testified that he calculated the link budget for the area using “typical values for link
6 budgets” to evaluate whether the -85 dBm standard was appropriate in this case and concluded
7 that “what [Verizon is] suggesting is reasonable and it’s within the typical link budget standards.”
8 TTII 323. However, Conroy admitted that he had not turned over to Verizon (and thus to BRN
9 and Berkeley) the figures he used to perform the link budget calculation. TTII 323-24. His failure
10 to turn over data supporting his calculation violated Federal Rule of Civil Procedure
11 26(a)(2)(B)(ii), which provides that an expert witness report “must contain . . . the facts or data
12 considered by the witness in forming” their opinions. As BRN and Berkeley were not provided
13 with the basis for Conroy’s calculations, they were deprived of the opportunity to challenge his
14 opinions on the reasonableness of Verizon’s standard. Accordingly, the court will not consider
15 Conroy’s testimony that he independently confirmed that the -85 dBm standard for in-building
16 coverage was reasonable or his opinion that it was “within the typical link budget standards.” *See*
17 Fed. R. Civ. P. 37(c)(1) (“[i]f a party fails to provide information or identify a witness as required
18 by Rule 26(a) . . . the party is not allowed to use that information or witness to supply evidence . . .
19 at a trial, unless the failure was substantially justified or is harmless.”).

20 Conroy also testified that even if Verizon used -95 dBm as the standard for in-building
21 coverage, “there still would be a gap in in-building service.” However, Conroy cited only the
22 existing coverage maps as evidence supporting his opinion. He did not create a different coverage
23 map using the lower standard and Verizon did not present data supporting his conclusion. TTII
24 334-36. For his part, Beegle testified that “the complexion of the maps” would change if a -95
25 dBm standard was used for in-building coverage due to the existence of “[a]reas . . . on the
26 threshold somewhere between negative 85 and negative 95”; such areas “might go from a I don’t
27 have service or I don’t have good service to I have good service or I have excellent service or I
28 have service at a minimum of some level.” TTII 379. Verizon has thus failed to demonstrate that

the use of -95 dBm as the standard for in-building coverage instead of -85 dBm would support a finding that there was a gap in in-building service.

III. CONCLUSIONS OF LAW

A. Effective Prohibition Claim

The TCA states that “[t]he regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof . . . shall not prohibit or have the effect of prohibiting the provision of personal wireless services.” 47 U.S.C. § 332(c)(7)(B)(i)(II). The statute defines the term “personal wireless services” to mean “commercial mobile services . . . and common carrier wireless exchange access services.” “Personal wireless service facilities” means “facilities for the provision of personal wireless services.” 47 U.S.C. § 332(c)(7)(C)(i), (ii).

The Ninth Circuit uses a two-pronged standard to evaluate an effective prohibition claim. Under this analysis, the provider must show (1) “a ‘significant gap’ in service coverage” and (2) “the lack of available and technologically feasible alternatives.” *T-Mobile USA, Inc. v. City of Anacortes*, 572 F.3d 987, 995-96 (9th Cir. 2009). When evaluating an effective prohibition claim, courts review the administrative record de novo without “deference to local findings.” *Los Angeles SMSA Ltd. P’ship v. City of Los Angeles*, No. 2:16-cv-04954-FLA (SKx), 2021 WL 3741539, at *4 (C.D. Cal. Aug. 24, 2021) (collecting cases). As noted, the court previously granted summary judgment in Verizon’s favor on the second prong of the effective prohibition test, the lack of available and feasible alternatives. *GTE Mobilnet*, 2023 WL 2648197, at *28. Accordingly, the sole issue for this claim is whether a significant gap in coverage existed in 2020, at the time of the denial of the Application.

“The significant gap prong is satisfied ‘whenever a provider is prevented from filling a significant gap in *its own* service coverage.’” *Am. Tower Corp. v. City of San Diego*, 763 F.3d 1035, 1056 (9th Cir. 2014) (emphasis in original) (quoting *MetroPCS, Inc. v. City & Cnty. of San Francisco*, 400 F.3d 715, 733 (9th Cir. 2005), *abrogated on other grounds in T-Mobile S., LLC v. City of Roswell, Ga.*, 574 U.S. 293 (2015)). “[T]he relevant service gap must be truly ‘significant’”; “the TCA does not guarantee wireless service providers coverage free of small

1 ‘dead spots’ . . .” *Metro PCS*, 400 F.3d at 733 & n.10.

2 “‘[S]ignificant gap’ determinations are extremely fact-specific inquiries that defy any
3 bright-line legal rule.” *Sprint PCS Assets, L.L.C. v. City of Palos Verdes Ests.*, 583 F.3d 716, 727
4 (9th Cir. 2009) (quoting *MetroPCS*, 400 F.3d at 733). “[C]ourts consider a ‘wide range of
5 context-specific factors’ in assessing the significance of alleged coverage gaps, including the
6 nature and character of the area, the number of potential users in that area who may be affected by
7 the alleged lack of service, whether facilities are needed to improve weak signals or to fill a
8 complete void in coverage, whether gaps pose public safety risks, and the effects of gaps on roads,
9 highways, railways, and commercial districts.” *Los Angeles SMSA Ltd. P’ship v. City of Los*
10 *Angeles*, No. 2:16-CV-04954-FLA (SKX), 2021 WL 3741539, at *4 (C.D. Cal. Aug. 24, 2021)
11 (citing *Palos Verdes Ests.*, 583 F.3d at 727). Other factors include whether the alleged “gap
12 covers well traveled roads on which customers lack roaming capabilities” and “drive tests.” *Palos*
13 *Verdes Ests.*, 583 F.3d at 727. “Inadequate or unreliable in-building service can be sufficient to
14 show the existence of a significant gap in coverage,” *Los Angeles SMSA*, 2021 WL 3741539, at *4
15 (citing *T-Mobile W. Corp. v. City of Huntington Beach*, No. 2:10-cv-02835-CAS, 2012 WL
16 4867775, at *4 C.D. Cal. Oct. 10, 2012)), as can “a gap in a provider’s in-home coverage that
17 consists of more than a few isolated pockets of inadequate in-home coverage.” *T-Mobile W. Corp.*
18 *v. City of Agoura Hills*, No. 2:09-cv-09077-DSF (PJWx), 2010 WL 5313398, at *8 (C.D. Cal.
19 Dec. 20, 2010).

20 Verizon’s Application described the “nature and character of the area” in the Berkeley hills
21 as “primarily residential and wooded,” but the precise location of the alleged gap area has been a
22 moving target. Similarly, Verizon has not clearly identified the “number of potential users in that
23 area who may be affected by the alleged lack of service.” The Application described the gap area
24 as “the Berkeley Hills area, especially along Euclid Avenue north of EBMUD’s Berryman
25 Reservoir.” A.R. 5. While the Kharaba Report provided slightly more detail, it was still
26 somewhat imprecise in describing the gap area as “areas near Euclid Avenue between Keith
27 Avenue and Vine Lane.” A.R. 1585. Kharaba also asserted that the proposed facility would
28 “provide improved service coverage to an area of 1.6 square miles and a population of 2,420

1 residents.” A.R. 1585. As noted above, Kharaba did not provide the underlying factual basis for
 2 these statements. In contrast, Conroy testified that the polygon-shaped gap encompasses over 1.1
 3 square miles⁹ and includes approximately 7,346 people based on 2010 U.S. Census data. TTI 112-
 4 13, 158. Verizon did not offer evidence addressing or explaining the discrepancies between these
 5 estimates of the size of the gap area and population therein. It also did not offer evidence about
 6 the number of Verizon or wireless users located in the area who might be affected by the alleged
 7 coverage gap.

8 With respect to whether the proposed facility is “needed to improve weak signals or to fill
 9 a complete void in coverage,” Verizon has never taken the position that there is a “complete void
 10 in coverage” in the gap area. Instead, the Application described the objective of “improv[ing]
 11 coverage in the Berkeley Hills area.” A.R. 5. Verizon presented no evidence that the purported
 12 gap poses public safety risks. It also presented no evidence about the daily traffic through the
 13 area, even though Conroy testified that he has included such information in other reports. TTII
 14 254-55. In fact, there is no evidence that the gap area is a high-traffic area; it is largely made up of
 15 single-family residential properties and open park space. It has no commercial development and
 16 lacks any well-traveled commuter highways or railways. A.R. 132, 133, TTII 255.

17 Drive tests are another factor courts consider in evaluating the existence of a significant
 18 gap. There are numerous problems with the 2019 drive test, which purports to show “inadequate
 19 4G LTE service coverage” in the gap area. A.R. 1582. Verizon did not present testimony by
 20 Kinney about how he performed the 2019 drive test, nor did it submit evidence regarding his
 21 experience or qualifications to perform the test. Further, it is not clear that Verizon produced all
 22 of the 2019 drive test data. As discussed, even though the 2019 drive test data was collected using
 23 two phones, Conroy initially testified that he received data from only one phone and could not
 24 explain the missing data from the second phone. Although Conroy later offered a new explanation
 25 that the data he received “could have been combined data between the two phones,” the court

26
 27 ⁹ Conroy’s opening and rebuttal reports did not provide the basis for his 1.1 square miles
 28 calculation. Verizon attempted to introduce an exhibit at trial that substantiated the calculation to
 which BRN objected on the ground that it was an untimely attempt to supplement the reports
 under Rule 26(a)(2)(D). TTI 113-14. The court sustained the objection. TTI 114-15.

affords this testimony no weight given the circumstances under which it was given and the fact that it is entirely speculative.

Additionally, the Kharaba Report based its determination that there was “inadequate 4G LTE service coverage” on RSRP only, and Verizon did not establish that consideration of RSRP alone is sufficient to assess network coverage. As discussed, Conroy testified that RSRP is “one of the parameters” that “is used to define coverage in LTE networks,” TTI 106-07, and Beegle testified that RSRP is not “a reliable method in and of itself to be able to determine coverage issues or lack of coverage issues” and should instead be combined with other factors “to be more demonstrative of the actual user experience in the field.” TTII 380.

Verizon also did not adequately support its use of -85 dBm signal strength as the standard for assessing in-building coverage. There is evidence that Verizon has used -95 dBm as the standard for in-building coverage in other cases; this is 10 times lower than the -85 dBm standard Verizon used to support its Application in this case. Moreover, Verizon failed to produce the underlying link budget information to provide factual justification for the -85 dBm standard. With respect to Conroy’s testimony that “there would still be a gap in in-building service” even if Verizon used -95 dBm as the standard, he did not create a separate map depicting the effect of a different standard or otherwise present data supporting his opinion.

Ultimately, Verizon rested on the 2019 drive testing and Conroy’s 2023 analysis to prove the existence of a significant gap in coverage in 2020, but failed to establish that the 2019 test results were reliable or that the 2023 analysis is probative of the conditions in 2020. It did not offer other credible evidence supporting the existence of a significant gap. Accordingly, the court concludes that Verizon has failed to prove by a preponderance of the evidence that there was a significant gap in coverage in the relevant area in 2020. Accordingly, the court grants judgment in BRN and Berkeley’s favor on the effective prohibition claim.

B. Remedy for the Failure-to-Act Claim

The sole remaining issue is Verizon’s remedy for the City’s failure to act on Verizon’s application “within a reasonable period of time” after it was filed, in violation of 47 U.S.C. § 32(c)(7)(B)(ii). The court held at summary judgment that it was “appropriate to defer” this

question “until the effective prohibition claim is resolved, because resolution of the effective prohibition claim in Verizon's favor would effectively moot the relief requested on the failure-to-act claim.” *GTE Mobilnet*, 2023 WL 2648197, at *29. As the effective resolution claim has now been resolved in the City and BRN’s favor, the parties shall brief the issue of the appropriate remedy for the City’s failure to timely act on Verizon’s application. Verizon shall file a brief addressing this issue that does not exceed five pages by no later than November 6, 2024. The City and BRN shall each file a brief in response that does not exceed five pages (or may file one combined brief that does not exceed five pages) by no later than November 15, 2024. The court will take the matter under submission upon completion of the briefing.

IV. CONCLUSION

For the foregoing reasons, Berkeley and BRN are entitled to judgment in their favor on Verizon’s effective prohibition claim. Verizon’s five-page brief regarding the appropriate remedy for the failure-to-act claim is due by November 6, 2024. The City and BRN’s five-page brief(s) in response is due by November 15, 2024.

IT IS SO ORDERED.

Dated: October 25, 2024

